

Notice of Allowability

Application No.

10/791,521

Examiner

James A. Fiorito

Applicant(s)

GREENBERG, RICHARD S.

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/15/07.
2. ☒ The allowed claim(s) is/are 1-5, 8-16, and 18-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER

IN THE CLAIMS:

Claim 1 (currently amended): A method of treating contaminants in a soil-containing in situ environment comprising: generating a stabilized source of peroxide in an effective amount of up to 35% by weight in water, administering the stabilized source of peroxide to at least a portion of the in situ environment, administering ozone to said at least a portion of the in situ environment thereafter and ozone in an effective amount of 2 to 15% by volume in air, ~~administering the peroxide and the ozone to the in situ environment~~ under spatial and temporal control conditions to form a reactive species principally in the form of hydroxyl radicals to oxidize at least one of the contaminants without acidification of the environment and without aggressive reactions between the stabilized source of peroxide and the ozone at the point of administration.

Claim 2 (previously presented): The method of claim 1 wherein the stabilized source of the peroxide is selected from the group consisting of hydrogen peroxide, sodium peroxide and calcium peroxide.

Claim 3 (previously presented): The method of claim 2 wherein the stabilized source of the peroxide is hydrogen peroxide.

Claim 4 (currently amended): The method of claim 1 ~~further~~ comprising forming the stabilized source of the peroxide by combining a source of peroxide with a stabilizer selected from the group consisting of acids, salts and mixtures thereof.

Claim 5 (original): The method of claim 4 wherein the stabilizer is selected from the group consisting of phosphoric acid, monopotassium phosphate and combinations thereof.

Claims 6 and 7 (canceled without prejudice).

Claim 8 (currently amended): The method of claim 1 ~~wherein the step of adding the stabilized source of peroxide and ozone results in the formation of a reactive species, said method~~ further comprising monitoring the concentration of the reactive species in the in situ environment.

Claim 9 (previously presented): The method of claim 1 wherein the in situ environment contains fractured bedrock.

Claim 10 (currently amended): The method of claim 1 comprising adding the stabilized source of the peroxide and ozone at an elevated pressure.

Claim 11 (original): The method of claim 10 wherein the elevated pressure is from about 40 to 100 psi.

Claim 12 (original): The method of claim 10 wherein the in situ environment is fractured bedrock.

Claim 13 (original): The method of claim 1 wherein the concentration of the stabilized peroxide is from about 3 to 25% by weight in water.

Claim 14 (original): The method of claim 1 wherein the weight ratio of peroxide to ozone is in the range of from about 0.4 to 1.2 w/w.

Claim 15 (original): The method of claim 1 wherein the amount of ozone in air is from about 3 to 12% by volume.

Claim 16 (original): The method of claim 1 comprising injecting the ozone through a plurality of injection points in the in situ environment.

Claim 17 (canceled without prejudice).

Claim 18 (previously presented): The method of claim 1 comprising allowing the stabilized source of peroxide to migrate through the in situ environment and then adding the ozone to the in situ environment.

Claim 19 (previously presented): The method of claim 18 comprising adding the ozone at multiple points to the in situ environment.

Claim 20 (previously presented): The method of claim 1 further comprising predetermining at least one of the concentration of the stabilized source of peroxide, the concentration of ozone and an effective member of treatment cycles necessary to effectively treat the contaminants in the in situ environment.

Claim 21 (previously presented): The method of claim 20 wherein the predetermining step comprises removing at least one sample of the in situ environment and treating the sample with the concentration of the stabilized source of peroxide, the concentration of ozone and a number of treatment cycles sufficient to treat the contaminants contained in the sample, and applying such concentrations and treatment cycles to the contaminants contained in the in situ environment.